

LISTING OF THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-7. (canceled)

8. (currently amended) A method for distributing ~~active hidden data~~ executable code in an electronic media distribution system, the media distribution device having a content providing device and at least one player device, comprising the steps of:

~~providing active hidden data and control data, wherein the active hidden data comprises a set of executable machine instructions and the control data supplementally governs extraction of the active hidden data;~~

~~embedding the active hidden data~~ executable code ~~and the control data~~ error correction data operable to ensure errorless extraction of the executable code into a media sound file host data stream to form an embedded data stream, ~~the active hidden data~~ executable code being embedded orthogonal to ~~an error correction data portion of the control data~~ the error correction data in the embedded data stream, thereby avoiding interference between embedded bits and ensuring extractability of the executable code and the error correction data so that errorless extraction of the active hidden data can be achieved, including embedding the executable code and the error correction data into singular points and maskee points of the host data stream to render the embedded bits imperceptible to a human auditory system, where a singular point, masker point and maskee point are defined as follows:

- a singular point $I(j)$ is defined as iff $\text{sign}(I(j)) = -\text{sign}(I(j-1)) \ \& \ \text{sign}(I(j)) = -\text{sign}(I(j+1))$;
- a masker point $I(j)$ is defined as a point with an intensity value larger than a threshold δ , i.e., $\text{amp}(I(j)) > \delta$;
- a maskee point $I(j^k)$ is defined as a point that is under the mask of a masker point $I(j)$, i.e., $\text{amp}(I(j^k)) < \text{mask}(\text{amp}(I(j)))$;

transferring the embedded data stream from the content providing device to the player device;

~~extracting the active hidden data and the control data from~~executable code and the error correction data from singular points and maskee points of the embedded data stream on the player device;

using the ~~control data~~error correction data to ensure the errorless extractability of the ~~active hidden data~~executable code from the embedded data stream; and

executing the ~~active hidden data~~executable code on the player device when the ~~active hidden data~~executable code is extracted without error from the embedded data stream.

9.-12. (cancelled)

13. (currently amended) The method of Claim 8 further comprising the steps of ~~defining at least a portion of the control data as~~embedding authentication data ~~embedded orthogonal to the hidden active data~~executable code and error correction data, and authenticating the embedded data stream using the authentication data prior to extracting the ~~active hidden data~~executable code.

14. (currently amended) The method of Claim 8 further comprising the steps of encrypting the ~~active hidden data~~ executable code prior to embedding the ~~active hidden data~~ executable code into the host data signal and decrypting the ~~active hidden data~~ executable code prior to executing the ~~active hidden data~~ executable code on the player device.

15. (currently amended) An electronic media distribution system for distributing ~~active hidden data~~ executable code in a host data stream, the media distribution device having a content providing device and at least one player device, the content provider device comprising:

a bit stream generator receiving ~~active hidden data~~ executable code and converting the ~~active hidden data~~ executable code into an active bit stream, ~~wherein the active hidden data comprises a set of executable machine instructions;~~

a first encoder receiving the active bit stream and the host data stream and embedding the active bit stream into the host data stream, thereby forming an embedded data stream; and

a second encoder receiving ~~control data~~ error correction data operable to ensure errorless extraction of the active bit stream and the embedded data stream and embedding the ~~control data~~ error correction data into the embedded data stream, ~~wherein the control data is used to supplementally govern extraction of the active hidden data and an error correction data portion of the control data is orthogonal to the active bit stream in the embedded data stream; and~~
the at least one player device comprising;

a first decoder receiving the embedded data stream and extracting the ~~control~~
data error correction data from the embedded data stream;

a second decoder receiving the embedded data stream from the first decoder
and extracting the active bit stream;

a correction module receiving the active bit stream and the ~~control data error~~
correction data, and using the ~~control data error correction data~~ to ensure errorless
extractability of the active bit stream from the embedded data stream; and

an initiator for executing the active bit stream on the player device,

wherein said first encoder and said second encoder are operable to embed the
executable code orthogonally to the error correction data in singular points and maskee
points of the host data stream to render the embedded bits imperceptible to a human
auditory system, where a singular point, masker point and maskee point are defined as
follows:

- a singular point $I(j)$ is defined as iff $\text{sign}(I(j)) = -\text{sign}(I(j-1)) \ \& \ \text{sign}(I(j)) = -\text{sign}(I(j+1))$;
- a masker point $I(j)$ is defined as a point with an intensity value larger than a
threshold δ , i.e., $\text{amp}(I(j)) > \delta$;
- a maskee point $I(j^k)$ is defined as a point that is under the mask of a masker
point $I(j)$, i.e., $\text{amp}(I(j^k)) < \text{mask}(\text{amp}(I(j)))$; and

wherein said first decoder and said second decoder are operable to extract the
active bit stream and the error correction data from the singular points and maskee
points of the host data stream.

16.-22. (cancelled)

23. (New) A content providing device for use in a media distribution system, the content providing device comprising:

an input receptive of executable code;

an input receptive of error correction data operable to ensure errorless extraction of the executable code from a host data stream; and

a plurality of encoders embedding the executable code and the error correction data orthogonal to one another in the host data stream, thereby avoiding interference between embedded bits, ensuring extractability of the executable code and the error correction data.

24. (New) The device of claim 23, wherein the executable code is operable to provide executable machine instructions on a player device for playing a media sound file contained in the host data stream, and the plurality of encoders are adapted to embed the executable code and error correction data into singular and maskee points of the host data stream, thereby achieving orthogonal embedding while guaranteeing imperceptibility of the embedded bits to a human auditory system when the embedded data stream is played on the player device by use of the executable code, wherein a singular point, masker point and maskee point are defined as follows:

- a singular point $I(j)$ is defined as iff $\text{sign}(I(j)) = -\text{sign}(I(j-1)) \ \& \ \text{sign}(I(j)) = -\text{sign}(I(j+1))$;
- a masker point $I(j)$ is defined as a point with an intensity value larger than a threshold δ , i.e., $\text{amp}(I(j)) > \delta$; and

- a maskee point $I(j^k)$ is defined as a point that is under the mask of a masker point $I(j)$, i.e., $\text{amp}(I(j^k)) < \text{mask}(\text{amp}(I(j)))$.

25. (New) A player device for use with an electronic media distribution system for distributing executable in a host data stream, the player device comprising:

a first decoder receiving an embedded data stream and extracting error correction data from the embedded data stream;

a second decoder receiving the embedded data stream from the first decoder and extracting executable code from the embedded data stream;

a correction module receiving the executable code and the error correction data, and using the error correction data to ensure errorless extraction of the executable code from the embedded data stream; and

an initiator for executing the executable code on the player device in order to play a media file contained in the host data stream.

26. (New) The device of claim 25, wherein the media file is a media sound file, said first decoder and said second decoder are operable to extract the executable code and error correction data from singular points and maskee points of the host data stream, where a singular point, masker point and maskee point are defined as follows:

- a singular point $I(j)$ is defined as iff $\text{sign}(I(j)) = -\text{sign}(I(j-1)) \ \& \ \text{sign}(I(j)) = -\text{sign}(I(j+1))$;
- a masker point $I(j)$ is defined as a point with an intensity value larger than a threshold δ , i.e., $\text{amp}(I(j)) > \delta$; and

- a maskee point $I(j^k)$ is defined as a point that is under the mask of a masker point $I(j)$, i.e., $\text{amp}(I(j^k)) < \text{mask}(\text{amp}(I(j)))$.